GRUMMAN plane news

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Elect Skurla Grumman Aerospace President

On March 21, Grumman Aerospace Corporation announced the election of George Skurla as President and Chief Operating Officer. Skurla, who had been Vice President-General Manager of Calverton Operations, succeeds Joe Gavin, who served as both President and Chairman of the Board. Gavin retains his post as Chairman and Chief Executive Officer of Aerospace. Skurla was also elected to both the Aerospace and Grumman Corporation Board of Directors. He succeeds Bill Zarkowsky, Vice Chairman of Grumman Aerospace, on the Board of Grumman Corporation.

George Skurla

Started career in 1944

Skurla started his career with Grumman in 1944 when he joined the company as an apprentice engineer following his graduation from the University of Michigan. The aeronautical engineer moved up the management ladder in a wide variety of positions, among them, liaison engineer, stress analyst, head of structural flight test, a tour as chief engineer of Aerobilt Bodies, and, in 1960, manager of commercial products in Business Development. Following that assignment, he returned to Flight Test as assistant director.

When Grumman selected Skurla in 1965 to head its operations team at Kennedy Space Center, the future President directed the site activation of the company effort at the Florida base, then directed the combined talents of 1,500 persons who were responsible for the pre-launch checkout and launch of the Lunar Module spacecraft.

Two near-textbook lunar missions, Apollo 11 and Apollo 12, added to the Grumman space team's production and launch record but during Apollo 13, when the Lunar Module Aquarius served as a "lifeboat" for three astronauts after a near-disastrous accident in the Command/Service Module, the entire Grumman space organization earned high praise from the entire nation.

After five successful lunar launches, Skurla was elected to a vice presidency of Grumman Aerospace, and, in 1970, was recalled to Bethpage to take over as director of product engineering.

In June 1973, after a 13-week senior management course at the Harvard Graduate School of Business, Skurla was named by Joe Gavin to head Calverton Operations. Although he was named President three weeks ago, Skurla indicated that he intends to spend a great deal of his time at the Calverton facility until he can prepare for the orderly transition of his duties there. (More on Skurla on page 4).

Gavin, Hedrick get national honors

Word came to Bethpage a couple of weeks ago that Board Chairman Joe Gavin and Senior Vice President Grant Hedrick of Grumman Aerospace were among 78 Americans elected to the National Academy of Engineering. The announcement was made official on April 1 by Robert C. Seamans Jr., president of the academy.

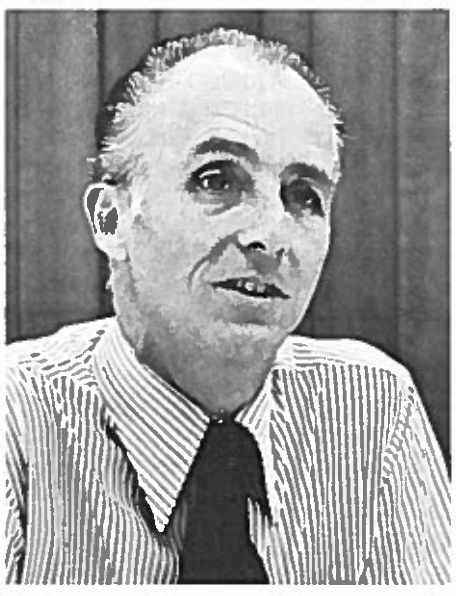
Gavin was selected for his leadership in the design and production of the Lunar Module which had such spectacular success during the seven moon missions conducted by the National Aeronautics and Space Administration as part of the Apollo Program. Hedrick was honored for his contributions to aerospace technology, particularly in the areas of structures and materials.

The National Academy of Engineering is a private organization established in 1964 to share in the responsibility given the National Academy of Sciences under its Congressional charter of 1863 to advise the Federal government, upon request, in matters of science and engineering, to sponsor engineering programs aimed at meeting national needs, to encourage engineering research, and to recognize distinguished engineers.

Election to the academy—determined by those already in the prestigious national group—is the highest professional distinction that can be conferred on an American engineer. Included in the 78 selected—this addition brings the total membership of the academy to 507—are individuals who have made major contributions to such diverse areas as acoustics, aeronautics, aerospace research and development, chemical and petroleum engineering, civil engineering, communications, communications satellites, computer science, earthquake engineering, electrical and electronics engineering, and nuclear engineering, among others.

In 1968, Gavin was selected by the Aerospace Educational Council for its "Man of the Year" award; the following year he received the Leadership Award for Management from C. W. Post College of L. I. University; and in 1971, NASA awarded him its Distinguished Public Service Medal for his

(Continued on page 4)



Joe Gavin

Grant Hedrick

Receive EOS study contract

On April 3, Grumman Aerospace received a $600,000 systems definition study contract for the Earth Observatory Satellite (ESO) from the National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md. The contract could lead to a final design contract in excess of $100-million, says Al Gartenberg, head design engineer of the EOS Grumman proposal crew.

Grumman Aerospace, TRW Inc. and General Electric Space Systems were the three companies selected for the systems definition study contract after an industry wide competition. Each firm is to submit its EOS design in six months. NASA at the Goddard Space Flight Center will analyze the data, incorporate specifications from the three designs and submit the final design for bid in an industry-wide competition.

According to Gartenberg, the Earth Observatory Satellite is being designed for launch by conventional launch vehicles as well as the Space Shuttle and will perform a variety of research and development application missions. As the satellite orbits the earth, says Gartenberg, its cameras and sensors will collect data that can be used in mapping resources and ocean currents. Grumman will be working with Computer Services of Silver Springs, in the design of the satellite.

The EOS study group headed by program director Joe Marino will be located in Plant 25 for the next six months.

Moore proving her point, and collecting on it, too

It isn't surprising any more to see Gloria Moore's name as a Project Sterling award winner. In her seven years with Grumman Aerospace, she has won over $1,100 in U.S. Savings Bonds and is now waiting for the word on her seventh award.

Gloria, who sees herself as a gregarious woman who enjoys people, feels that her own determination and encouragement from her managers have contributed to her success as a six-time award winner, but, she says, "women are often afraid to make suggestions because of the fear that men will consider their suggestions unintelligent. By coming up with money saving ideas, however, they will show men that they are just as capable."

A follower of the women's lib movement, "but not an advocate," she says, that "Women can do anything that they want to. Black women have always felt that way. I like being treated as a woman, but I also feel I should be evaluated only on my work ability."

Before coming to Grumman, Gloria worked for General Instruments in Hicksville. "I liked working for General Instruments but I wanted to get into something more rewarding . . . so I applied to Grumman and worked for a short time in Plant 33." She left Plant 33 and went to Critical Material Control, in Plant 21. While there she won four awards. "When I'm working," she says, "I'm constantly thinking of ways to improve my job. I try to think of ways that would make the job less time consuming for me and yet benefit the company."

One of Gloria's earlier awards saved about eight hours a week in tracking the various kinds of purchased material that flow from outside suppliers into Bethpage and Calverton. Working with computer report forms in Plant 21, Gloria noted that a lot of time could be saved, and duplication avoided, if material that had been tracked in Plant 24 Inventory Control was identified as "previously tracked." The tracking system in her section then would not attempt to reprocess (and then reject) it. This suggestion won Gloria a $425 bond.

Last year Gloria won two awards for suggestions made in Plant 21. She suggested combining two input-messages of delivery status into one on the computer terminal, and combining several input messages into one open requisition. As a result of the suggestion the program was changed and this resulted in saving over 17 hours per week.

Since November Gloria has been working in GDS Data Processing in the Data Systems Center. "I like my job even more now. I think it is an experience to work with computers. Although I had no formal training when I was assigned to the computer room," she says, "I did have on the job training. My co-workers were extremely helpful during that period. There is only one other woman in Data Processing and the men are in the majority. I had never worked with

Gloria Moore

so many men and had anticipated some resistance, but they have been very helpful. I find that it is important to get along with people you work with."

When she left Stoney Creek, Virginia, Gloria had no definite plans for the future, except to get married. "At that time," she said, "I didn't realize how much I could do if I applied myself."

Someday she plans to tour Europe and satisfy her curiosity of how other people live. Now most of her time is spent with her 15-year-old daughter, Tawanna.

Gloria is very confident about the future. "I don't have any major complaints about anything now. I'm working on another idea that I hope will be a winner . . . maybe one that will help me go to Europe."

Time to sign up

The Annual Meeting of Grumman Shareholders is scheduled for 2 p.m. on Thursday, May 16, in Hangar 3, Plant 4. Starting April 11, Bankers Trust Company—Trustee for the Grumman Employee Investment Plan—began mailing to members of the Plan proxy statements and confidential cards for voting at the Annual Meeting, says Bob Bradshaw, Grumman Corporation Secretary. Employees are asked to return the completed cards by May 10 to Bankers Trust Company in the self-addressed, postage-paid envelopes that will accompany the proxy statements.

The Annual Meeting is often the only opportunity visiting Shareholders have to see the Company's products. Because Grumman stock obtained through the Investment Plan is held in trust for each individual member, membership in the Plan does not automatically entitle participants to attend the Annual Meeting, says Bradshaw. Only those persons owning stock of record—that is, stock purchased outside the Investment Plan before the record date of March 29—are eligible to attend.

Grumman personnel who own Company stock as of the record date, March 29, 1974, and who wish to attend the meeting should pre-register at any Employee Services Office on any working day before May 16. (Proxy cards should, of course, be mailed in the return envelope provided.)

Because of limited space at the meeting, Shareholders are requested to refrain from inviting their spouses, children, or friends to the Annual Meeting.

CU report: Business booming!

The annual meeting of the Bethpage Aircraft Federal Credit Union was held on Thursday, March 28, in the Huntington Town House. Over 1,800 persons attended the dinner-meeting.

The Credit Committee announced the establishment of F.H.A. Home Improvement Loans for members, as one of its goals for the year. The F.H.A. program would allow loans up to $5,000, payable up to seven years, and the low "truth-in-lending" interest rate of nine percent per year.

In presenting the Credit Committee report, Chairman Bernie Smith reminded the members of the purpose of the Credit Union. "The purpose of the Credit Union is to take prudent risks with your credit union shares by authorizing loans to members for productive purposes. Last year the committee approved 11,706 loans—an increase of more than 36% over 1972—for a total of $24,362,872."

On remarks concerning the F.H.A. loans, Smith singled out recent innovations. "The Credit Committee now has authorization to approve unlimited amounts on all pass-book loans, and we now have available loans for the purchase of mobile homes. You can also refinance your loan and extend your loan repayment period."

John Fessel, Credit Union treasurer announced an increase in assets of $8,263,598 last year, a 25% jump over 1972. This brought the total assets to an all-time high of $41,418,483. Last year there was an increase in membership of 3,600 Grumman employees and their families, bringing the total membership to over 24,300 at the end of the year.

Concluding his report, Fessel remarked that dividends paid to members on their savings increased to almost two million dollars in 1973, representing a 61% payout of the total 1973 C.U. income. The average payout of credit unions in the U.S. is 50% Fessel noted. " . . . and when you consider that an additional 6% of C.U. total income was refunded to our borrowers, that gave a grand total of 67% of the income returned to our members."

The Credit Union also boasts an added benefit to the membership of life insurance for both the savers and borrowers at no cost. Savers are insured up to $2,000 based on age and the amount in savings, while eligible borrowers are insured up to $10,000, base on the amount of their outstanding loans.

The Executive Committee reported on the kinds of investments which the Credit Union approves: loans to other credit unions; obligations of the U.S. or securities backed by full faith and credit of the U.S. Government; deposits in savings and loans associations or mutual savings banks insured by Federal insurance; bank obligations guaranteed by the Federal Government; Government agency participation certificates; shares or deposits in Federally insured credit unions. The Certified Public Accounting firm of Hurdman and Cranstoun is employed to audit Credit Union books. The C.U. will retain its present on-line computer system for checking details on members' accounts at tellers' windows.

The establishment of four new C.U. committees was noted during the meeting. These committees and their chairmen include: Budgets, Ray Montano; Collections, Ceil Davis; Information, Tim Shea; and Legislative, Bob Giles.

C.U. President Joe Milillo concluded the meeting by pointing out the progress of the new Credit Union building now under construction on Stewart Ave. in Bethpage.

"The key to a truly healthy Credit Union," said Milillo, "is for the members not only to save at the credit union, but to borrow there. The members can't miss."

Application forms for Credit Union membership are available in all Employee Service Offices or plant administrative offices, and from the Credit Union adjoining Plant 2.

Welcome home. Vice Chairman of the Grumman Aerospace Board Bill Zarkowsky (C) presented former POW Army Captain Robert T. White (R) with a Recognition award and his wife Judy with a Mohawk charm bracelet at a recent ceremony at the Stuart plant. (Photo by Fred Annette)

Stuart welcomes ex-POW back to Mohawk country

It was high noon at Stuart, Florida, as the entire 630-member workforce gathered in front of a reviewing stand that was flanked by two OV-1 Mohawks. As the guest-of-honor made his way to the platform, the crowd moved out of the hangar shadows onto the sunbaked runway. Army Captain Robert T. White was back in "Mohawk country"—and the crowd wanted him to know it.

Shot down in a Grumman OV-1 surveillance aircraft on November 15, 1969, Captain White was released by the Viet Cong in April 1973 after 3½ years in captivity. Almost a year to the day after his release he was presented with a Recognition Award from Bill Zarkowsky, Grumman Aerospace Vice-Chairman of the Board. His wife, Judy, was also honored with a bouquet of roses and a Mohawk charm bracelet as a more lasting remembrance of the visit to Mohawk country.

Besides the entire workforce at Stuart, Art Melrose, Stuart general manager; Lt. Col. Eugene Walsh, U. S. Army Commander-Grumman Plant Activity at Stuart; Tom Doyle, OV-1 program manager at Stuart; Bob Benito, director of Army programs for Grumman; and John Lueck, manager of Army programs at Stuart, were present to honor the captain and his wife.

Upon receiving the "Welcome Home" plaque and Mohawk model, Captain White commented that during his years as prisoner-of-war he was concerned whether or not he "would have to pay for the expensive airplane" that was lost when he was shot down. Over the past year, the Army captain said he has had the pleasure of being exposed to a number of people and organizations, "but I have never been more at home than I feel right here today."

After completing two years at DePaux College, Captain White served in the Army from 1960 to 1962. During his next three years as a civilian, his interest in aviation grew and he attained a private pilot's license before rejoining the Army Aviation Corps as a warrant officer candidate in 1965. The following year, he completed the warrant officer candidate flight school, and was assigned to the 1st Calvary Division for his first tour in Vietnam. In 1967, he received a direct commission as 2nd lieutenant, and in the same year, married his wife Judy in San Francisco. Stateside from 1968-69, he was assigned to the Transportation School in Fort Eustis, Va., under the command of Lt. Col. Walsh.

The Army captain returned to Vietnam for his second tour in 1969. On November 15, while flying a surveillance mission with a naval observer, Lt. Cdr. John G. Graf, his Mohawk was hit by enemy fire over the Mekong Delta. He ordered his passenger to evacuate, and when the cockpit began to fill with smoke he himself ejected. He was sighted by a U.S. Coast Guard ship patrolling the area, but due to a compound fracture of the spine, White was unable to evade the enemy. (His back healed naturally without medical assistance during his capture.)

3½ yrs. captivity

Over the next three and a half years, Captain White moved about the swampy countryside with his Viet Cong captors. During that time, he claims to have become a culinary expert on a variety of rat dishes. In his spare time (the captain says he had plenty of it), he perfected the hand-made chopstick, which the Viet Cong made to trade for food and supplies. An average Viet Cong chopstick would sell on the market for about four cents, but due to his talent, Captain White's chopsticks were sold on the market for 10 cents.

On several occasions, his Viet Cong captors would allow him to listen to the radio. It was from a Hanoi English-speaking radio station that he heard of the January 27, 1973 ceasefire agreement. He was finally released by his captors on April 1, 1973—the last of the 588 U.S. prisoners-of-war who were released.

During the past year, Captain White and his wife Judy have become avid bicyclists. Though they haven't gone on trips longer than 25 miles, they plan on lengthening the distance gradually over the coming spring and summer. Judy is finishing her senior year at William and Mary where she is majoring in German, and Bob is presently stationed at Fort Eustis, Va., undergoing Transportation Officer training. He hopes in the near future that he'll be back in a Mohawk cockpit once again.

Air Force heads joint effort on Global Positioning System

Sometime in the 1980s, a number of navigation satellites orbiting the earth will help to provide the United States with a world-wide network — called the Global Positioning System — that will allow any ship at sea and all military and commercial aircraft in flight to pinpoint their exact location. It will also establish the position of moving objects on the ground (people, tanks, etc.) Although the Global Positioning System is a joint-services effort, the Air Force is charged with program management and is responsible for the development of the satellite system.

On April 1, Vice President Tom Kelly's space team submitted the Grumman Aerospace proposal on G.P.S. to the Air Force's Space and Missile Systems Organization (SAMSO) on the West Coast. Grumman is up against strong competition—RCA, Philco Ford, and Rockwell International — in its bid to capture the long-term, multi-million dollar contract.

Prime contractor for the Global Positioning System will be responsible for the design, fabrication, test, check-out and launch of the satellites, and will assist the Air Force in support operations while the satellites are in orbit. Developmental satellites are expected to be launched from Vandenberg Air Force Base in 1977, with the navigational system in complete operation in the '80s. The Air Force is expected to announce a contract winner about July 1.

plane
GRUMMAN
news

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Iran calling!

All employees interested in international assignments to Iran are requested to submit their resumes to Field Administration and Liaison, Plant 28, Dept. 315.

The current plan is to relocate approximately 300 families by mid-1975. All resumes will be processed through the F-14 program office for skill selectivity. In turn, recommendations and applications will be submitted to the Grumman Iran office for final approval. All applicants will receive written notification regarding selection.

A new Intruder for Marines. The first A6-E (M-45) assigned to a U.S. Marine Corps squadron was delivered on March 27 at Calverton. On hand at the delivery site were (l-r): Bill Trillo, A-6 program director; Cdr. J. Roth, USN Resident-in-Charge at Calverton; Lt. Col. J. Cowart, commanding officer of VMAT(AW)-202 Cherry Point; and Major J. Davis, Maintenance Officer, VMAT (AW)-202.

Mullaney appointed V. P.; to set up new GII home office

Come July, Bob Mullaney and his family will be "flying down to Rio" where he will set up *lar* (Portuguese for home) in Rio De Janeiro, Brazil, both for his family and for Grumman International's new South American home office.

Mullaney has recently been appointed vice president of Grumman International in charge of business for South America and manager of Grumman Industrial Ltda. His chief responsibilities in Rio will be to set up an office for Grumman International, identify and develop opportunities in South America, and market products and resources for all the Grumman subsidiaries. In addition, he says he hopes to identify and develop foreign products as potential additions to the Grumman product line and investigate joint ventures for the company. Richard Savadsky will assist him in the new South American office.

Mullaney recently returned from a visit to Brazil and says he sees "great opportunities and prospects for Grumman in South America." To meet the Brazilians on equal ground, Mullaney and his wife, Helen, are both currently studying Portuguese through a home study program.

Mullaney received his B.S. in engineering from the University of Notre Dame in 1942, after which he served as a Naval aviator in the Pacific and was awarded a number of decorations, including the Purple Heart.

He joined Grumman in 1945 as a flight test engineer, then entered the engineering department in 1948 as a propulsion specialist. He advanced to F-11F project engineer in 1957 and in 1961 served as a special assistant to the president when he was responsible for corporate cost reduction programs. He served as the Lunar Module program manager from 1962-66, then was appointed chairman of the corporate "make/buy" committee and corporate source selection committee. From 1969 until 1972, Mullaney was project manager for F-14 operations, and last year, became head of the EXCEL program.

Felicitacao e bom fortuna, Roberto!

Bob Mullaney

Skurla sees 'adaptability' prime managerial asset

When a management student asked him to describe his management style recently, George Skurla replied: "Early American." Perhaps that remark best typifies the new President of Grumman Aerospace: somewhat irreverent, not always predictable, somewhat uneasy when people try to put him and others in senior management in a nicely wrapped package.

He claims "adaptability" is a prime managerial asset so it shouldn't be too surprising that he borrows slogans and aphorisms to motivate. Among his favorites: "I don't believe in being second best" and "If it's worth the effort, it's worth the extra effort to excel." That may sound trite to corporate sophisticates, but those closest to him can attest to its effectiveness. He's a firm believer in hard work; he's convinced that a manager must be willing to put in as long and hard hours those he's leading — even longer when necessary — if the job is going to get done . . . and there were some surprised people at Kennedy Space Center and more recently at Calverton when the future president dropped in periodically at 2 o'clock in the morning to see how things were going. And not surprisingly, it boosted morale and the production pace as well.

He sets high standards and then drives himself and everyone around him to achieve those goals. One of his closest associates says that "If he's got confidence in you, he'll give you a job to do and the responsibility and authority to do it. But don't be surprised if you run into George while you're doing the job. He's not looking over your shoulder; he's really trying to find out as much about the total operation as he can so that he fully understands every part of his operating environment."

He likes person-to-person (he calls them eyeball-to-eyeball) meetings; dislikes operating from behind a desk; chews people out, even those closest to him, when he thinks it's necessary; likes to attack rather than react to difficult situations; can take suggestions, even those somewhat critical of his opinions, from those whom he has confidence in; thinks of his relationship with the operational world of Grumman as a partnership arrangement—with himself as the senior partner, make no mistake about that; demands the same dedication and commitment from his staff as he does from himself; thinks too much time is wasted in meetings, especially those with overly large casts; believes that Grumman must continually upgrade the caliber of its people as well as its products; rewards loyalty and hard work. One of his main concerns, Skurla says, will be that of continuing to improve the general well-being and working conditions of people in all segments of the corporation who contribute their best efforts to the company.

George Skurla

Some people who have observed George Skurla in his operating environment have come away with the feeling that he is very demanding, even hard-nosed. Others see him as charming, persuasive, even charismatic. Perhaps, at times, he is all of these while trying to accomplish his prime aim. "Get the job done on cost, on schedule, as promised."

Viewing George Skurla in only a part of his operating and personal world can be misleading. It supports his opinion that no one, especially himself and others in senior management, can be put in a nicely wrapped package.

Honor Gavin, Hedrick

(Continued from page 1)

meritorious contributions "as the leader and representative of the Lunar Module team at Grumman Aerospace Corporation. . . ."

Hedrick, who is director of Advanced Systems Technology, was selected for the "Spirit of St. Louis Award" in 1967 by the American Society of Mechanical Engineers; a year later the University of Arkansas tapped him for membership in its "Hall of Fame for Distinguished Arkansas Engineers"; and in 1971, Hedrick was presented the Sylvanus Albert Reed Award by the American Institute of Aeronautics and Astronautics for "technical excellence, design innovation, and leadership in the structural development of several generations of aerospace vehicles."

OBITUARIES

LEWIS RIOS of Maintenance, Plant 6, died March 21 at the age of 55. He had been with Grumman Aerospace since 1952 and lived at 49 Herbert Circle, North Patchogue.

WILLIAM R. SPERLING of Employee Services, Plant 5, died March 21 at the age of 61. He had been with the company since 1956 and lived at 143 Acre Lane, Hicksville.

ALFRED E. WINDELER of PPO- F-14, Plant 1, died March 25 at the age of 58. He had been with Grumman since 1967 and lived at 280 Dorchester Road, Garden City.

DONALD C. BUTZBACH of GSE Mechanical, Plant 2, died March 30 at the age of 33. He had been with Grumman Aerospace since 1959 and lived at 404 Pleasant View Court, Copiague.

RUSSELL CUNNINGHAM of Final Assembly Structure, Plant 36, died April 1 at the age of 54. He had been with the company since 1951 and lived at 134 Lindbergh St., Massapequa Park.

Nearly 700 Grummanites at Point Mugu, California, are engaged in an operation which the F-14 program managers say has evolved into one of the most advanced system integration facilities of its kind in the free world.

AN INSIDE LOOK AT POINT MUGU

At precisely 8 a.m. on almost any workday, the phone rings in Joe Smith's office.

"That's New York calling," says the head of Grumman's operations at Point Mugu, California, where the F-14 weapons system is undergoing development, testing and evaluation. "It's 11 a.m. back East and they've already had three hours to line up their questions for the day. Some of our people come in at 7 a.m. just to get ready for the eight o'clock phone calls."

He smiles. It's the kind of unruffled grin that comes from a man who, over the years, has learned to take pressure in his stride. Smith's 30-year Navy career spans achievements such as those of an aviator who has flown nearly all the aircraft Grumman has ever built; numerous fighter squadron commands; carrier skipper (USS Intrepid); and at one time, commanding officer of the Point Mugu facility. The transition from the Navy to Grumman since 1969 when Smith joined the company has been a relatively easy one for the retired Navy captain.

* * * *

The aura of expediency spreads through the huge Point Mugu complex like flowing lava. Partly because high priority items are part of the daily routine, but mostly because the primary mode of business here is the testing and evaluation of weapons systems and guided missiles. So broadly diverse are the activities that the base is often likened to an octupus with tentacles embracing nearly every other Naval activity in the surrounding Southern California area.

(Although Mugu may look or sound like a Navy acronym, it's actually the Chumash Indian word for "place of landing.")

Located along California's scenic Pacific Coast Highway, 50 miles north of Los Angeles, Point Mugu's first guided missiles were launched in 1946. The base's geographic location is considered ideal for evaluating missiles and operating aircraft by remote control because of the vast expanse of the Pacific Ocean as a safety area for test operations. Neighboring Laguna Peak provides a convenient site for communication and instrumentation equipment and the islands in the Santa Barbara Channel provide locations for the instrumentation of the sea test range.

The 4,600-acre Point Mugu complex serves as headquarters for a number of primary and tenant commands. Included are:

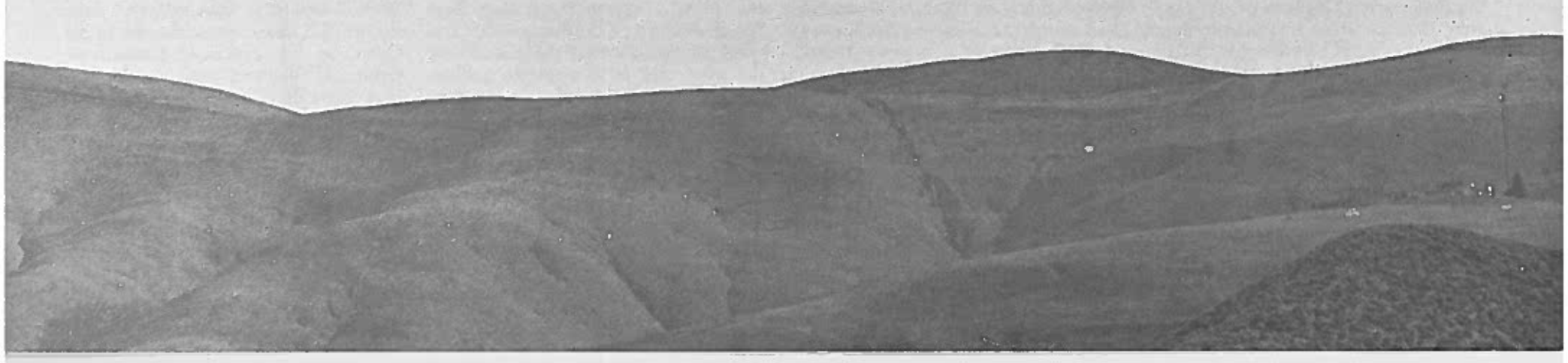
- the Naval Missile Center which tests, evaluates, supports and exercises engineering cognizance of naval weapons, weapons systems and related devices as assigned by the Naval Air Systems Command.
- the Pacific Missile Range Directorate which designs, develops, operates and maintains the range facilities—the designated parts of the Pacific Ocean off the California coast plus facilities along the coast and on the offshore channel islands—and supports missile and satellite programs of the Army, Navy, Air Force, Marine Corps, NASA and other governmental agencies such as the Atomic Energy Commission and the Advanced Research Projects Agency.
- the Navy Astronautics Group which operates and maintains Navy space and satellite systems.
- the Air Test and Evaluation Squadron Four (VX-4), an operational organization which develops the proposed tactics, evaluates and investigates aircraft weapons systems, support systems equipment and material in an operational environment.
- Guided Missile Unit 41 which supports VX-4 in testing and evaluating air-to-air guided missiles.
- the Naval Air Station, a component of the Pacific Missile Range, which maintains and operates the support facilities at Point Mugu and on San Nicholas and Santa Cruz Islands.

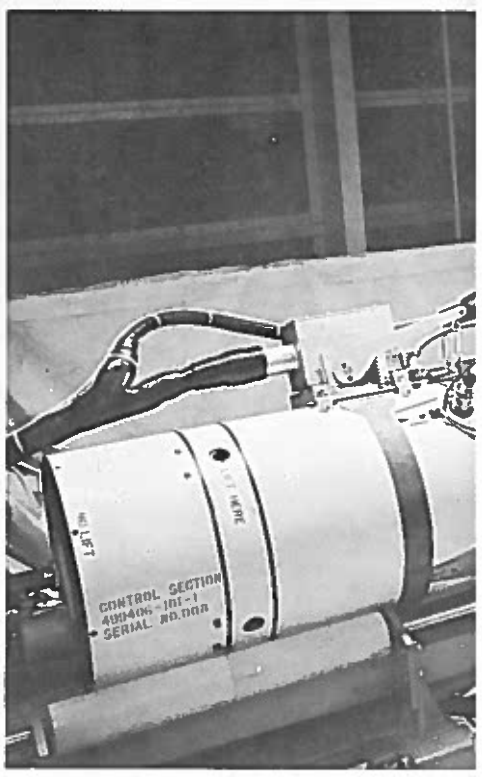
The unifying factors for all these organizations are that their functions require similar equipment and facilities such as aircraft, laboratories, unmanned and manned targets, guided missiles, data gathering instrumentation, launch sites, runways and unencumbered space.

And that's where Grumman fits in. The company first came to Point Mugu in 1969 to perform the F-14 weapons system integration and evaluation and meet the demonstration requirements of Grumman's contract with the Navy. Since then, the Grumman group has met all of its scheduled milestones on time in a systematic way and, in the

(Continued on page 6)

Photos by Dick Sanders





Point Mugu

(Continued from page 5)

process, has substantially increased the scope of its work at Point Mugu.

Today, there are nearly 700 Grumman employees at Point Mugu, about 16 of whom are on detached assignment to the Naval Air Station Miramar near San Diego. The West Coast employees are a combination of long-term Grummanites and relative newcomers who joined the company in California. In the production department, for instance, foreman Sal Conforti has been with the company for 22 years, avionics leadman George Rowe, 12 years, and mechanical leadman Larry Bignami, 32 years. Avionics leadman Larry Worsham and mechanical leadman Maury Owens both joined the company in 1972 in California. In the Engineering Department, three ex-New Yorkers who transferred to Point Mugu four years ago are Joe Altieri, Dick Peterson and Kenny Clapp. Mel Packard and Stan Rothman of the SITS Laboratory both joined the company in Bethpage.

Grumman's initial role on the West Coast involved a complex job of management, says Rudy Kretschek, technical assistant to Joe Smith and who was one of the first in 1969, along with Tom Brancati (now a vice president in Grumman International and who was Joe Smith's predecessor at Point Mugu) to come to Point Mugu to help start the Grumman operation.

"We had to time-phase our people and our equipment so they would both arrive at the right times," he explains. "Hughes Aircraft already had people here who were working on various programs including the AWG-9 fire control system which is a part of the F-14 weapons system. Not only did we have to deal with our own Navy contracts, we were also involved with those of our associates, like Hughes, which had separate F-14-related contracts with the Navy. In addition, we had to coordinate all our work with a number of civilian and government agencies on the base, such as the Naval Missile Center through which we do all our work with the Navy. So part of our initial task was to set up effective communications with our company counterparts in New York as well as all the different groups out here."

Distance between New York and California was one of the early challenges the Mugu men had to meet. "The original efforts associated with establishing this field site were very much like the international negotiations conducted by the State Department," says Bill Carozza, operational assistant to Joe Smith and who headed the Point Mugu liaison office in Bethpage when the first offsite transition was started. "The original requirements for Point Mugu were not detailed in our basic contract so all man-hour/dollar budgets, corporate assets and minimum-maximum stock had to be negotiated with the various sections of the company."

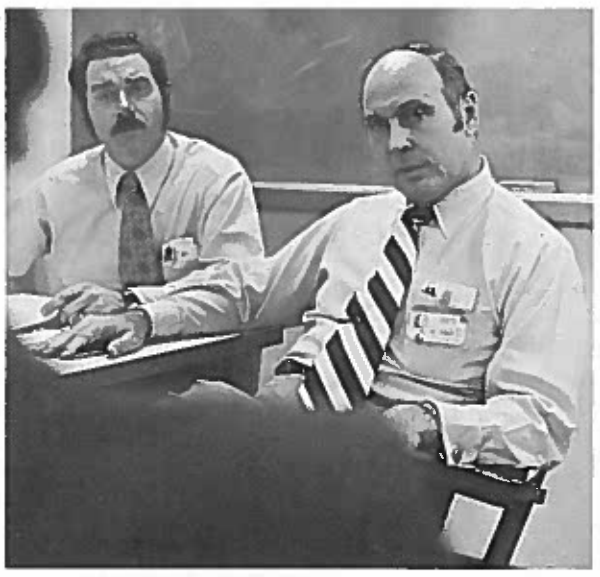
Today, Grumman is still a tenant on the Point Mugu base with facilities provided by the Navy that include numerous buildings, offices, laboratories, shops, warehouses and hangars. The size, scope and significance of this operation, though, is more clearly seen by first taking a tour of the various departments within the Grumman organization.

SITS Laboratory

The focal point for nearly all of the company's activities at Point Mugu is a rather remarkable innovation called the F-14A System Integration Test Stand (SITS), a replica of the forward module of the F-14A, including the pilot and NFO cockpits and instrument panels, and a complete avionics weapons system. SITS interfaces with a Sigma V computer complex which provides computer control and data acquisition for simulation of F-14A mission profiles. This way, complete avionic system hardware and software performances can be verified without leaving the ground.

When the huge steel doors of the SITS Laboratory are opened, the SITS unit is rolled out on rails to overlook the Pacific Missile Range, track controlled target aircraft and transmit data to the Sigma V computer. Result of the "live" target tracking tests: the first flight test of the F-14A weapons system at Point Mugu was a success and SITS is now used by Grumman primarily for software and product development, feasibility demonstrations of new systems, and to support other Navy tasks. In addition, all new tactical programs or corrections to the existing software are verified on SITS prior to being loaded into the aircraft.

The F-14A SITS was built by Grumman in Plant 1 in Bethpage and transported to Point Mugu where the avionics systems were installed and integrated. "Everything starts with SITS," says Mel Packard who runs the SITS Laboratory where he is assisted by an experienced team of Grumman engineers who over the past four years have developed the technical expertise required to maintain and operate SITS. "In fact, we had a weapons system fully integrated on SITS long before we even got an F-14 out here. SITS gives us the capability to do test and evaluation of the complex F-14 weapons system that would otherwise have to be done in flight.



Another advantage of SITS is that when a problem is observed in flight, we can simulate the same target-interceptor flight geometry on SITS and investigate the cause of the anomaly."

How accurate is SITS? "We can simulate almost any target interceptor profile," says Packard. "For example, we can simulate multiple target raids on SITS to verify the tactical program. We used SITS to simulate the profiles for the Navy's six-on-six Phoenix missile test prior to the actual launching of the missiles. Moreover, before the first F-14 arrived at Point Mugu, during the integration phase of the avionics on SITS, there were many hardware and software problems and incompatibilities that were discovered and corrected. By the time the AWG-9 system went into the first F-14 at Point Mugu, the system had already been integrated and tested on SITS and the Grumman team awaited the collection of comparative data on the first actual flight."

Engineering

The group that preoccupies itself with both the present and the future at Point Mugu is the Engineering Department headed by Joe DeSimone who worked on the EA-6B program at Calverton before coming to the West Coast. DeSimone describes his department as a technical team with the capability of working in all aspects of a complex weapons system and which is also charged with developing new ideas and innovations. The team's two principal considerations are a fixed price contract, the one which brought Grumman to Point Mugu in the first place, and a follow-on contract, which has recently been awarded to Grumman for the continuance of the F-14A weapons system development.

Embracing such functions as development testing, performance analysis and systems compatibility verification, the Engineering Department is divided into five major groups:

- Systems development, headed by George Newman, which handles the F-14 avionics systems.
- Aircraft operations engineering, headed by Ron LaPolla, which troubleshoots aircraft vehicle problems and coordinates overall engineering flight operations.
- Software, headed by Don Schell, which includes the development of all tactical software.
- Systems test and analysis, headed by Ray Lokkeberry, which is responsible for all test analysis for SITS and the flight development effort.
- SITS laboratory, headed by Mel Packard, which is used for all basic systems and software integration work.

Among the engineers' innovations is the implementation of a Rapid Automated Maintenance System (RAMS), a two-way data link for automatically transmitting the maintenance status of the F-14 to the carrier before the plane actually lands. "We designed the software for the F-14 RAMS program and incorporated it in the AWG-9," DeSimone explains. "The next phase of the program will be its shipboard installation."

Another example of innovation, DeSimone points out, is the gun mode, Real Time Gun Sight (RTGS), which was engineered at Point Mugu and has now been incorporated in the F-14.

Operations

The skillful interweaving of Grumman's daily operations at Point Mugu is the job of the Operations Department, headed by Mike Bennett, a 13-year veteran with the company. Operations is an all-encompassing function which covers all the other departments at Point Mugu except SITS and Development Engineering. "Our main job is to keep the aircraft moving," Bennett says. "We serve as a central source so if anyone has a question or a problem, he can call Operations and we cut through red tape for him."

Bennett describes his job as that of an "interface" with Grumman's three principal programs at Point Mugu:

- the follow-on program, headed by Art Karle.
- the update program, for bringing the configuration of aircraft Numbers 40 through 68 up to deployment configuration, which is headed by Bill Musick.
- the original prime contract which Bennett himself oversees.

Bennett came to Point Mugu in 1970 as flight test manager and last year, was named operations manager. "Our original purpose was to do avionics demonstrations and basic air-to-air missile separation programs which are all a part of the original fixed-price contract," he says. "As things progressed, our role here expanded. For example, the Navy subsequently transferred all the air-to-ground missile work out here, most of the air-to-air separation work and completion of the automatic carrier landing function. As it turned out, the scope of our work is now about three times what it was when we first came to Point Mugu."

Flight Test

By the time the F-14 software and avionics systems are ready for flight test evaluation, they have already been through an exhaustive debugging process in SITS. There are 62 people in the Flight Test Department, including three flight crews consisting of pilots Hal Farley, Pete Purvis and Charlie Stender, and weapons systems control

(Continued on page 8)

Point Mugu

(Continued from page 7)

officers Sam Ammons, Marty Lachow and Bill Sherman.

Gene Morrison is Mike Bennett's successor as flight test manager. He has been with the company for 14 years, came to Point Mugu as a flight test project engineer, became deputy flight test manager and last summer, flight test manager. Morrison speaks with exuberance about Grumman's role at Point Mugu and his talk is salted with numbers, facts, details and the inevitable interruptions that are characteristic of a busy operation. Glimpses from a taped interview with Morrison are reported here.

"Flight Test's primary job at Point Mugu is to demonstrate how well the weapons system works in flight. SITS data is part of the base line for comparing in-flight data. But SITS is a laboratory tool and you can't always duplicate the complete dynamics of in-flight performance in the laboratory . . .

"We've run numerous programs here such as the missile separation program. It's a very critical program and there's always the potential danger we faced when we lost aircraft Number six . . .

"A software tape change is a very complex matter. You never know when you change one thing if it will affect something else. We continually use the aircraft for developing new hardware and software and reporting how it works—good or bad—and recommend ways to improve the system . . .

"We support the Navy with our technical people here. We work very closely with the Naval Missile Center which supports our needs with facilities and services . . .

"Planning test flights is a totally integrated matter involving engineering and flight test technical people, flight crews, test conductors and the like. We all sit down together for briefings to plan what we're going to do and how we will try to accomplish it . . .

"We have to schedule our work here two weeks in advance because a lot of people use the Pacific Missile Range and you have to plan what you want to do ahead of schedule . . .

"We have flown the F-14 against flying targets to develop the air-to-air gun system. We had an on-board counting system for recording the number of rounds passing near the aircraft and those actually hitting the target. We actually did a lot more than was required to prove the accuracy and reliability of the weapons system . . .

"We conduct many different types of tests. When we uncover problems we try to determine how to correct them. We also maintain a continual communication interface with our counterparts in New York and keep them informed of what we are doing out here . . .

"We have a very complex operation here. There's a lot more involved than just planning a flight and going out and meeting your objectives. The people here are dedicated to meeting objectives, though. We know that things don't always go perfectly, but that's part of the challenge out here."

Production

Grumman's production facilities bear some resemblance, on a smaller scale, to their Calverton counterparts. Production accounts for about half the Grumman employees, occupies 8,600 square feet of floor space and, according to Production head Phil Tartas, "we have everything we need to maintain a small fleet of planes."

The Update program now in progress is primarily a Production effort. The F-14s of Navy squadrons VF-1 and VF-2 at Miramar are brought to Point Mugu to receive the current configuration changes prior to their deployment to the USS Enterprise this summer. The Update program is now in full swing. Tartas reports that the first seven F-14A aircraft have been delivered to the Navy between one and six days ahead of schedule.

"Part of our job here is to assist the fleet activities at Miramar," says Tartas. "The first F-14s will deploy from Miramar. If they need our technical assistance any time, we can be down there in a couple of hours." Coordinating the turnabout of the "Up" aircraft for Grumman at Miramar and providing technical and engineering liaison between Point Mugu and Miramar is Ray Yerden, the Point Mugu program representative at Miramar.

Tartas' group is accustomed to deadlines and pressures. One of the department's biggest tasks to date has been the BIS preparation work on Tomcats Numbers 15, 16, 18 and 19. "It was a big job," he says, "and we kept everyone aware of things that would slow down the program. At one point, we actually froze the configuration so no one could make any more additions and prevent us from meeting our schedule."

The bright green racks, tables and stands in the production hangar are the custom-designed products of Tartas's supervisor for production planning and control, Jerry Bocek. His other key assistants are Dutch Eggerbrecht, assistant production supervisor, Joe Myer, mechanical superivsor, and Dick Kling, avionics supervisor.

Tartas refers to the continual communication his department has with the Navy and with the other Grumman departments as "teammanship." "I've never seen such good teammanship between engineering, flight test, production and quality control as we have here," he says. "We don't have people telling us to interface, we simply interface."

Quality Control

Russ Irwin, head of QC, agrees. "You can't inspect quality into a product," he says. "You have to instill quality into people's thinking. Quality is a total involvement concept. That's one reason why we have crosstrained

our people to do jobs that are in specialties other than their own. For example, all of our aircraft inspectors can function in the receiving-inspection aspect and 90 per cent can work in the electronics area. All of our regular warehouse people and 40 per cent of our electronics inspectors can function on the aircraft and in other tasks."

Irwin says that his department becomes involved with each aircraft as soon as it lands at Point Mugu. QC does a complete review of the plane to ascertain its condition, render assistance to the Navy representatives, perform inventories, witness testing, and inspect and record work efforts that are accomplished on the aircraft.

There are 58 people in Grumman's QC department, a blend of New York Grummanites and locally hired California employees. Assistant QC manager Dan Brands is a QC engineer from Bethpage. Inspection supervisor Ron Kirkpatrick is also from New York. However, senior quality engineer Glenn Miller and inspection supervisor Bob Nastali both joined the company in California.

At Point Mugu, Quality Control is a part of the flight development and F-14 modification programs. "Whenever you introduce a new product, there are bound to be some problems that have to be corrected," says Irwin. "The F-14 is in a state of continual evolutionary development. So, different parts or systems are considered new at different times. When we do uncover problems, though, we don't just raise the flag and run. We raise the flag and then stay to help with the resolution of the problem. For example, one of our inspectors wouldn't say, 'this part is defective, replace it.' He or she would more likely say, 'this part is defective because. . . .' That way, we can analyze the problem, and have it corrected or modified."

Product Support

Keeping the F-14s fed with parts at Point Mugu is the responsibility of the 70-man Product Support Material Department headed by Bob Seabrook.

"We support the whole operation here by supplying materials, repairing failed hardware, requisitioning new parts, and maintaining ground support equipment," Seabrook explains. "We also run a warehouse to perform the shipping and receiving functions, as well as the inventory control and analysis. At one time we stocked 25,000 line items in our warehouse, most of which have now been transitioned to the Navy supply system."

Not infrequently, Product Support is called on to tackle the "impossible" jobs. Bill Vargas tells of the time the Grumman paychecks en route from Bethpage to Point Mugu were held up in Las Vegas where the plane carrying them had been grounded because of bad weather. Vargas says he called the airline, and after some lengthy discussion, was able to have the package released from the plane and delivered to Point Mugu on time for payday.

(Continued on page 10)

An Interview with Captain Ira N. Schwarz

Capt. Ira N. Schwarz

Capt. Ira N. Schwarz, USN, is commanding officer of the Naval Missile Center, the primary command which oversees all of Grumman's activities at Point Mugu. Capt. Schwarz is a naval aviator and an aeronautical engineering duty officer with both operational and technical duty experience.

Capt. Schwarz's 25-year Navy career began after completion of undergraduate work in aeronautical engineering at Virginia Polytechnic Institute. Over the years, he served in various squadron assignments, attended the Naval Postgraduate School at Monterey, Calif., where he received a Masters of Science degree and served in engineering assignments with the Polaris/Poseidon program office, at the Naval Engineering Center and the Naval Air Development Center. In 1968, he was assigned to the staff of the Chief of Naval Personnel where he served as the aeronautical engineering control officer. Prior to his present assignment he served as director of the airframe division, material acquisition group, Naval Missile Center.

In an interview with Plane News, Capt. Schwarz discusses the purpose of the Naval Missile Center and its significant role as the Navy's primary weapons test and evaluation center.

* * * *

What is the primary mission of the Naval Missile Center?

The Naval Missile Center is the only field activity of the Naval Air Systems Command with the specific mission for testing and evaluating all airborne weapons systems. We have a broad responsibiilty covering the life cycle of missile weapons systems, from the development support phase through development test and evaluation, including such tests as Navy Performance Evaluations (NPEs), Board of Inspection and Survey trials and support to the operational tests and evaluations (OT&Es), which are the function of VX-4, an activity of the Operational Test and Evaluation Force, OPTEVFOR. We also follow-through with technical engineering support after the missile weapons system has been turned over to the fleet. We call the latter phase engineering cognizance.

How large is the Naval Missile Center?

Compared with other field activities, NMC is a large command with 1,771 civil service positions; 568 military positions of which 81 are officers; and about 900 contractor personnel who are on board in permanent assignments. In addition, we currently operate 52 aircraft of 13 different types.

What are the principal commands at Point Mugu?

There are three primary ones: the Pacific Missile Range headquarters, the Naval Air Station which provides support facilities for the complex, and the Naval Missile Center. We are located here with the other activities to take advantage of the extensive range capability of the Pacific Missile Range.

What is the role of the Naval Missile Center in regard to all the other commands in the southern California area?

Miramar, of course, is the home of the F-14 training and fleet squadrons. However, we received the F-14 on the West Coast before anyone else, and therefore we had to conduct extensive training programs in conjunction with our regular evaluation programs. We have people from Miramar working at Point Mugu with our people in support of the aircraft to become familiar with the planes and their weapons systems.

We also work closely with many other activities such as the Air Force for the support of the F-15 missile weapons system testing on the Pacific Missile Range. We work closely with the Naval Weapons Center (NWC) at China Lake on many of their programs. The NWC is the research and development activity for Navy missile systems, while we are the test and evaluation activity.

In our engineering cognizance responsibility, we perform a management function in which we utilize the services of many Participating Field Activities (PFAs), such as the Naval Air Rework Facilities (NARFs), development activities like NWC and the ordnance facilities for training. Despite thorough development and evaluation testing, operational problems often surface during fleet use. At that time, we make an analysis and determination of the best approach for resolving the problem, and then coordinate the various field activities to make sure the problem is resolved in the most expeditious way for the fleet.

To what extent do you utilize simulation techniques at Point Mugu?

As our weapons systems become more complex and expensive, it becomes more important to simulate test and evaluation missions to preclude having to fly or fire weapons until we have learned everything we can on the ground. It's much less expensive this way, and it is not unusual for us to go through literally hundreds of simulations of a particular missile firing before we actually fire the missile.

The current trend toward simulation is the result of pressures to reduce cost, as well as the increasing complexities of the systems. In the F-14 which is simulated in the SITS Phoenix weapons system, for instance, there is a great deal of complex hardware and software and changes to one subelement may have significant ramifications throughout the entire system. Extensive evaluation of the system is essential when even a minor change is made to any part of the system. Through our simulation facilities, we can marry all the hardware of the aircraft with a particular missile system and its software and play back the interactions of all these components to determine how they are going to function. You can gain a very high confidence in the system this way before you actually fire the missile. We can also get a lot more work accomplished in less time than we could if we had to do all our tests in flight. Of course, this does not replace flight testing, but it enables us to obtain more data from each actual missile firing.

Is simulation to the point where you can rely on it?

One of our jobs at the NMC deals with the correlation of the simulations. For example, when we develop a simulation and have it to the point where we think it actually duplicates the flight environment, we then test it in flight and compare the data. This way we keep refining the simulations.

We are reaching the point now where the simulations can be readily correlated with actual flight experience. As we gain confidence in the simulations, we can do more with them. It is a very important part of the test, evaluation and the engineering cognizance aspects. For example, if a weapons system is introduced to the fleet and a particular problem occurs, as soon as we get the information, we can duplicate the situation by means of simulation and hopefully determine the difficulty without having to fire more than one or two missiles.

What facilities do you have here for simulation work?

In addition to the SITS laboratory, we also have many other facilities in our laboratory organization. They include an anacoic chamber for conducting radar reflectivity analysis of threat simulators and the Laboratory Integration System (LIS) for performance tests on the Phoenix Missile itself. We also have laboratory facilities

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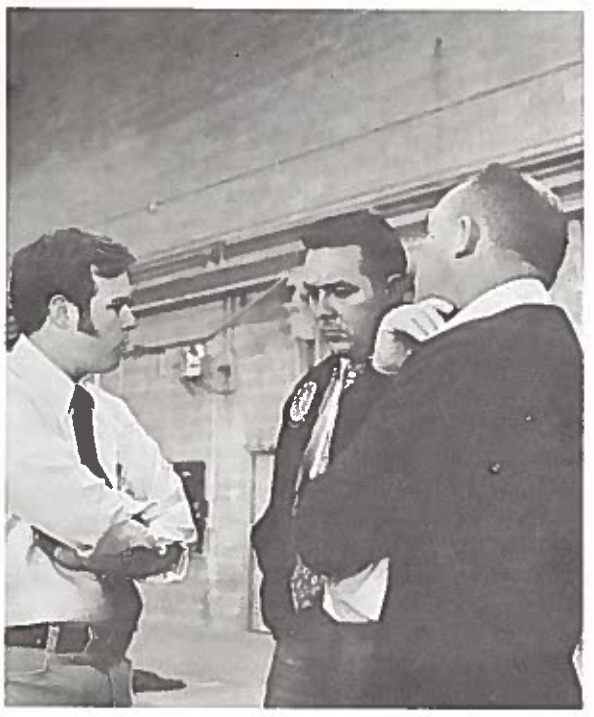

Point Mugu

(Continued from page 9)

An integral part of the department, Seabrook points out, is the 14 electronic and mechanical engineers who are charged with the repair and configuration of all GSE at Point Mugu. In addition, they design local work and assist production and engineering in troubleshooting aircraft and black boxes.

"One of the unique advantages of our group here," says Seabrook, "is its relative smallness. This way, we are able to house a broad variety of disciplines under our control and provide a very rapid response to resolving problems. The result is that we are able to provide highly specialized support to get jobs done that would otherwise take much longer."

Administration

Whenever nearly 700 Grumman employees are in the same location, you can be sure there is a Field Base Administrator nearby handling all their personnel needs. At Point Mugu it is John Torkelson who is assisted by Glenn Hansford. Together, they manage to administer all the services the company offers, ranging from travel arrangements to group insurance to setting up the annual Grumman picnic out West.

"We have brought in 150 new people recently for the Update program on the Miramar Tomcats," says Torkelson, a 22-year career man with Grumman whose previous field assignments have been at such places as Patuxent River, Md., and White Sands, N. M. "Half of these people are on loan from other departments in the company while the other half consists of local talent recruited from within a 100-mile radius of Point Mugu. Some of the people come from other aerospace firms, others are recent Navy and Air Force veterans."

In addition to their regular personnel duties, Torkelson's group also publishes a newsletter for the Grumman employees at Point Mugu. The editor is Grummanite Pat McCown.

Follow-on

The Follow-on program represents the major portion of the SITS and weapon system flight development effort at Point Mugu and according to Art Karle, the F-14A Follow-on program manager, it "reflects the Navy's confidence in Grumman's F-14A weapons system experience and capability. The follow-on contract gives our customer the visibility, control and flexibility to take maximum advantage of the team and test facilities developed at Point Mugu."

A basic part of this program, Karle explains, is to provide support for the on-going Navy test programs and to support the fleet introduction of the F-14 at NAS Miramar. The follow-on contract covers such major services as verification of hardware and software configurations, development testing of new system concepts and the evaluation of alternative candidate installations for the aircraft.

"We go through a very thorough and controlled verification process to validate software and hardware changes prior to their installation in the aircraft," says Karle. "Then we complete the cycle with verification in the aircraft and flight environment. As the changes are tested and problems are identified which impact the system design, we forward this data to our engineering counterparts in Bethpage. We also maintain strong communication links with our production people in Calverton to insure an orderly transfer of new software for introduction into the production cycle."

The transition of capabilities to the Navy is another aspect of Karle's concerns. "We're actively training the Navy personnel in the use of SITS in connection with the Navy's goal to assume software management and configuration control of the F-14A. Point Mugu is the focal point for this activity because SITS is here, as well as the concentration of trained and experienced Navy test personnel."

* * * *

It's a massive, complex effort for both Grumman and the Navy at Point Mugu. Milestones are being met and increased responsibilities accruing. "We have a terrific technical capability here for both advanced and ongoing programs," Joe Smith adds. "We are continually looking for ways to use this expertise and talent to advantage for the Navy and for Grumman."

* * * *

At 5:30 p.m., Joe Smith is usually in his office. Things are much quieter at Point Mugu at this time of day. Most of the Naval personnel have gone home. A quiet settles over the one-story frame building, the Pacific Ocean less than 100 yards away can be heard lapping the shore.

It's at this time that Smith and deputy director Charlie Brown frequently discuss the day's business. Brown, too, is a retired Naval aviator, with 22 years of service including a tour as commanding officer of Fighter Squadron 142 and two combat tours to Vietnam. Brown joined Grumman in 1967, was later assigned to the F-14 program and before coming to Point Mugu, served as F-14 program manager and project pilot for the Carrier Suitability Program at NATC, Patuxent River, Md.

The two former Navy men have a good rapport, and an inside understanding of the needs of both Grumman and the Navy. After such a meeting with Brown, Smith usually comments: "Seems to me we're in good shape for those 8 a.m. phone calls tomorrow morning."

Champs at last! After six years, the men's varsity finally won the L. I. industrial tourney. The champs are (L-R standing) Ed Gabriel, Tom O'Conner, Richie Neste, Ted Dija, Frank Tucholski, (kneeling) Frank Fiorentino, Ed Hilbert, Cliff Hartnack, and Don Vasquez. Not pictured, Nick Malandro. (Photo by Bob Settles)

Neste leads men's varsity to first L. I. title in 6 years

After an absence of six years, the Grumman keglers finally stepped into the L. I. Industrial tournament winner's circle. Turning back a determined bid by AMF to win its third straight championship, the men's varsity won by a mere 18 pins—one of the closest finishes in the 33-year history of the Grumman sponsored tournament.

Tourney standout and Grumman anchorman, Richie Neste, converted a spare in the last frame to clinch the championship. Though it was Grumman's time to celebrate, it was a bittersweet night for Neste—Al Lauritsen of Newsday edged him out by four pins for the Outstanding Bowler Award. Going into the final night of competition, Neste was leader over-all, but Lauritsen in the eleventh game killed the pins in the first nine frames with strikes. After a solid 6-pin rap in the 10th frame, he went on to shoot 279. But it was still a tight race for high tourney series, until the last frame of the 12-game contest—the Newsday kegler doubled in the 10th frame to steal the top honors from Neste.

On the final night, Neste led the way for the Grummanites with 244-221-210-675. Rounding out the Grumman pin power were Ed Hilbert, 212-558; Cliff Hartnack, 210-584; Tom O'Connor, 202-581; and Frank Tucholski, 493.

Rolling 300 pins over its team average, the host Grumman team also managed to place first in the Incentive Division, but tourney rules preclude any team from winning more than one trophy. Therefore, by edging out tourney newcomer Hazeltine by 13 pins, AIL won the Incentive Championship for the fifth time.

Mixed team loses

The 12th Annual L.I. Industrial Mixed Bowling Tournament got off to a pin-hitting start even though the Grumman keglers only placed eighth out of sixteen teams sponsored by Pan Am. Richard Neste of the Grumman team was high scorer with 568, followed by Chin Thompson, 540; Ed Hilbert, 525; and Meg Sheridan, 414. Chin Thompson was high-game winner for the ladies and earned her High Series Award.

The championship went to Nassau County which walked away with the first place trophy with a score of 2217. LILCO came in second with 2212. LILCO was leading at the end of the second game, but Nassau County came thru with an 813 game over LILCO's 685.

Hellcats win Glen Cove title; tie Cops in Industrial league

The Hellcats are on the prowl—they've already clinched the Glen Cove league title and in the ever-tough Industrial league have climbed into a first place tie with the Nassau County Police.

On the road to clinching the Glen Cove title, the varsity basketball squad overpowered the number-two slotted team, Trot Inn, 111-91, and defeated Pub Ivanhoe, 90-59. In the victory over Trot Inn, Larry Tarvin supplied the offensive punch with a career-high of 41 points. In addition to controlling the floor game, Frank Quarto and Eddie Krol each chipped in 14 points. In the game that finally decided who's champ, Quarto led the way with 23 points over Pub Ivanhoe.

The big game against the undefeated police resulted in a Grumman victory, 85-84. This win avenged an earlier loss to the cops and pulled the Grumman hoopsters into a first place tie with the losers. With one minute left in the game and the Hellcats down 81-82, Quarto stole the ball and converted for a two-point field goal. The cops answered with a basket and retook the lead. With 25 seconds remaining, the varsity worked for the last shot which John Ebron made with six seconds to go. Don Kalland sewed up the victory by stealing the ball from the cops during their last rally. Krol was high man with 28 points.

Other action on the Industrial basketball circuit pitted the Grummanites against LILCO, with the varsity finishing on top, 73-71. Nothing was going right in the first half, but the hoopsters pulled it all together for the final two periods. Ebron was instrumental in the win sinking in 18 points and grabbing 14 rebounds. Krol, Quarto, and Kalland contributed 17, 15, and 12 points, respectively.

Mets tix

"Grumman Nights" at Shea Stadium this year will not only include the National League champions of 1973, but also the N. Y. Yankees. Mets tickets are on sale at the GAA office for $2.50; Yankee tickets are being sold for $3.00. Bus tickets are also available for each game at $1.75.

The following games will be "Grumman Nights" at Shea: June 14 - Mets vs. LA Dodgers; July 5 - Mets vs. San Francisco; July 19 - Yankees vs. Kansas City; August 9 - Mets vs. Cincinnati Reds; Sept. 6 - Yankees vs. Detroit Tigers; Sept. 27 - Mets vs. Pittsburgh.

For additional information, contact the GAA office, ext. 2269 or 2133.

Golf tryouts begin May 13

If you have hopes of becoming a member of the Grumman varsity golf squad this year then you should sign up for the annual 54-hole golf classic set to begin Monday, May 13 at Bethpage State Park. Only Grumman golfers with handicaps of 10 or less are eligible to enter the tryouts. Handicaps must have been established in 1973 over regulation layouts, and all leagues or club handicaps should be included on the entry form.

Varsity berths will go to the eight low medal players in the three 18-hole rounds. After the second round, set for May 15, the field will be sliced to the 16 low scorers, with the varsity eight determined on total scoring for the 54 holes, which ends on May 20. Play will be held on the Red and Black courses at Bethpage.

The Grumman varsity, perennial champs of the L. I. Industrial circuit, will be seeking its 11th straight team title this summer. Entry forms should be forwarded to Mike Cherry at the GAA office, Plant 30, by April 19.

Varsity golf tryouts

Entry blank

Name ..... Perm. No. .....

Dept. ..... Plant ..... Ext. .....

Club or league	Course	Handicap
.....	.....	.....
.....	.....	.....
.....	.....	.....

Submit to GAA, Plant 30, by April 19

Calling net tourney entries

A few kinks still plaguing your backhand? Having trouble breaking your opponent's service? Too early in the season to perfect your lob? Better pull your game together—the Fourth Annual Tennis Tournament is slated to begin April 29.

Last year out of a field of 82 singles entries, Al Kirillin copped first place honors and proceeded to team up with Tom Guarino for the second year in a row to win the doubles title over 35 other teams.

Contestants must arrange for courts and pay court fees, according to Chet Baumgartner, GAA tourney director, and it is suggested that whenever possible matches should be played on clay courts. GAA will supply the tennis balls for all matches, pay court fees for semi-final and final matches, and provide trophies for first- and second-place winners.

The GAA tennis tournament is an *open* tourney—that means women as well as men are eligible to enter.

Tennis tourney entry

Singles

Name ..... Perm. No. .....

Plant ..... Dept. ..... Phone Ext. .....

Home Address ..... Phone .....

Doubles

Partner's Name ..... Perm. No. .....

Plant ..... Dept. ..... Phone Ext. .....

Home Address ..... Phone .....

Entry Deadline Friday, April 19
(Forward to GAA Office, Plant 30)

Data Systems offering computer course

Grumman Data Systems Institute is offering to those who would like to expand their programming background a comprehensive course in Report Program Generator (RPG). This 32-hour course will be given on Monday, Tuesday, and Thursday evenings from 6 p.m. to 10 p.m. starting April 30. Students will write their own programs using IBM 360/75 and IBM 370/165 computers.

The place: Grumman Data Systems Institute at 17 West John Street (between Rt. 106 and 107 south of LIE) Hicksville, L.I., N.Y., 11801.

The cost: $125, which includes all textbooks and materials. Due to limited enrollment, it will be on first-come, first-served basis.

Also, Grumman employees are eligible for a 10 percent discount at GDSI.

For registration or more information call Ext. 2095.

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

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GAA slates trip to Portugal

Some people dream of touring the ancient cities of Portugal. If you are one of them, here is your chance to make the dream a reality. GAA is offering a 7-day trip that includes:

- Round-trip via Tap, Portuguese Airways 707, from Sept. 6 - 14
- Seven days at Estoril Sol Hotel, 15 miles from Lisbon, with sauna and turkish baths
- Bullfights, art galleries, Fado singing and museums
- All transfers and baggage handling

Employees and retired personnel, parents, and children or spouse living in the same household are eligible. An employee must accompany his immediate family on the flight and every member of the group must have a passport. The cost of the trip will be $469 per person with double occupancy in rooms. A deposit of $200 is required. Final payment of $269 is due August 1.

Reservations may be made April 23 at 5:30 p.m. in the waiting room of Plant 28. For additional information, contact GAA, Ext. 2269.

An Interview with Capt. Schwarz

(Continued from Page 9)

for the effective evaluation of software applications, not only for the F-14 but for many other Navy weapons systems. We do the debugging work, evaluate the effectiveness of the systems and play them against the hardware for which they are developed.

We also do laboratory simulation work with countermeasures and their application to missile systems. For example, we subject a missile system to an electronic environment to determine its susceptibility to enemy jamming, then determine what kind of "hardening" the guidance and control systems may require to enable them to survive in that kind of environment. We use actual hardware for these simulations but the equipment stays on the ground and is tied together by digital and analog computers. We do extensive operations against simulated targets in LIS which is in the same building as SITS.

How is NMC organized?

We function in a matrix management organization with seven departments: weapons program management; test operations; laboratory; aircraft maintenance; threat simulation; photographic; fleet weapons engineering.

Would you describe the monitoring function of your command?

Part of our function here is what we call Government Lot Acceptance Testing which is a means for assuring the quality of the production lots of certain quantities of missiles. Prior to the government's acceptance of a production lot, we bring some of the missiles out here and put them through extensive laboratory, environmental and flight testing, and sometimes actual firing. It is a significant part of the Navy's assurance that quality weapons will be delivered to the fleet.

How do you assure that you get the most value from the taxpapers dollars?

There are many ways we accomplish this. The priorities for the different weapons programs are set in Washington, D.C., and our assignments come primarily from the different program managers, such as those in the Naval Air Systems Command. The Chief of Naval Operations determines the relative priorities between the programs and it is up to us to support the evaluation portions of all these systems. It requires a great deal of study and coordination to make sure we can optimize all of our resources.

We try to live by the philosophy of assuring the maximum "bang for the buck." There's no magic in that; it's the way we conduct our business everyday. If we can determine the effectiveness of a missile through simulation rather than actual firing, we do so. We won't fire a missile unless we're convinced that the missile and its cost are necessary to carry out an evaluation.

Moreover, the NMC is Navy Industrially Funded which means that we operate essentially on a profit and loss basis. We charge our customers—who are the Navy managers of the different programs or the other commands such as the Air Force—for the projects we pursue. We try to charge them the actual costs of carrying out programs. At the same time, we accurately determine our own costs in terms of manhours, facilities, range time, telemetry and all the other services we use. Since we are not a private business, our objective is to make a zero profit. We try to recover exactly that which we spend. Thus, we are required to utilize the disciplines of management that require cost watching and we are conscious of not spending money on nonproductive efforts.

Are you able to come fairly close to your objectives each year?

Yes, but it calls for close monitoring. The rigors of good management require that we pay continuous attention to such factors as charges, overhead rates, inventories and the like, all of which are very important in this type of operation. By watching them closely, we can come very close to our objectives, although it is often difficult to hit the breakeven mark exactly. For example, we are projecting our budget for 1974 at $105 million and we expect to come within one or two per cent of it by year's end.